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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,268	10/25/2005	Katsutoshi Tahara	280051US6PCT	2728

22850 7590 04/18/2008  
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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BATTAGLIA, MICHAEL V

ART UNIT	PAPER NUMBER
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2627

NOTIFICATION DATE	DELIVERY MODE
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04/18/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/554,268	<b>Applicant(s)</b> TAHARA, KATSUTOSHI	
	<b>Examiner</b> Michael V. Battaglia	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-14 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Drawings***

2. Figures 1-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

3. Claim 1 is objected to because of the following informalities: On line 18 of claim 1, replacing "the electrical" with --an electrical-- is suggested. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Yanagawa (US 6,246,660).

In regard to claims 1, 8 and 12, Yanagawa discloses an optical disc apparatus (Figs. 1, 2 and 4) for recording the information on an optical disc (Fig. 1, element 1), comprising an optical head device (Figs. 1 and 4, elements 2 and 3 and Fig. 2) including a laser light emitting unit (Fig. 2, element 21) for radiating laser light to said optical disc, and a light detection unit (Figs. 2 and 4, element 28) illuminated by return light of radiated laser light to generate an electrical signal containing information components obtained from said optical disc responsive to the illuminating return light; and a signal processing circuit (Fig. 1, element 7) performing control for reproducing signals recorded on said optical disc or for recording signals on said optical disc, responsive to the electrical signal output from said optical head device (Col. 4, lines 27-32 and 42-49); said light detection unit including a photoelectric converter unit (Fig. 4, elements 281-283) divided into at least two portions along a direction corresponding to the radial direction of said optical disc; a multiplication circuit (Fig. 4, element 313) for multiplying an electrical signal (output of Fig. 4, element 307), generated by one (Fig. 4, elements 282 and 283) of said two portions of the photoelectric converter unit, obtained by division in a direction corresponding to the radial direction of said optical disc, with a coefficient  $t$  (“coefficient  $k$ ” of Col. 7, lines 29-31); and a differential circuit (Fig. 4, element 312) for calculating the difference between [an] electrical signal (output of Fig. 4, element 310) generated by the other (Fig. 4, element 281) of said two portions of the photoelectric converter unit obtained by division in the direction corresponding to the radial direction of said optical disc, and the electrical signal output from said multiplication circuit, to generate a radial push-pull signal (Fig. 4, “ $S_{TE} (DPP)$ ”); said coefficient  $t$  being set to a value corresponding to a ratio of the volume of return light illuminated on said one of said two portions of the photoelectric converter unit and the volume of return light

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illuminated on said other of said two portions of the photoelectric converter unit (Col. 7, lines 44-49).

5. Claims 1, 2, 8-10, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Kashiwabara (JP 2000-306253). Note that citations to the text of Kashiwabara refer to the English translation provided by the Japanese Patent Office (JPO) website.

In regard to claims 1, 8 and 12, Kashiwabara discloses an optical disc apparatus (Fig. 1) for recording the information on an optical disc (Fig. 1, element 1), comprising an optical head device (Fig. 1, elements 2-4 and the amplifiers to which signals E and F are input) including a laser light emitting unit (Fig. 1, element 2) for radiating laser light to said optical disc (Paragraph 0018), and a light detection unit (Fig. 1, elements 3 and 4 and the amplifiers to which signals E and F are input) illuminated by return light of radiated laser light to generate an electrical signal (Fig. 1, elements E-F) containing information components obtained from said optical disc responsive to the illuminating return light (Paragraph 0018); and a signal processing circuit (Fig. 1, elements 5 and 6) performing control for reproducing signals recorded on said optical disc or for recording signals on said optical disc, responsive to the electrical signal output from said optical head device (Paragraph 0019); said light detection unit including a photoelectric converter unit (Fig. 1, element 3) divided into at least two portions along a direction corresponding to the radial direction of said optical disc (inherent to produce signals E and F which are subtracted to produce tracking error signal TE); a multiplication circuit (Fig. 1, variable amplifier which receives signals F and TBAL as inputs) for multiplying an electrical signal (Fig. 1, element F), generated by one (portion of Fig. 1, element 3 which generates signal F) of said two portions of the photoelectric converter unit, obtained by division in a direction

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corresponding to the radial direction of said optical disc, with a coefficient  $t$  (Fig. 1, element TBAL); and a differential circuit (Fig. 1, element 4) for calculating the difference between [an] electrical signal (Fig. 1, element E) generated by the other (portion of Fig. 1, element 3 which generates signal E) of said two portions of the photoelectric converter unit obtained by division in the direction corresponding to the radial direction of said optical disc, and the electrical signal output from said multiplication circuit, to generate a radial push-pull signal (Fig. 1, element TE); said coefficient  $t$  being set to a value corresponding to a ratio of the volume of return light illuminated on said one of said two portions of the photoelectric converter unit and the volume of return light illuminated on said other of said two portions of the photoelectric converter unit (This feature is inherent because the manner in which the value of coefficient  $t$  corresponds to the ratio is not specified and any value corresponds to another value in some way. In addition, coefficient TBAL must be set to a value corresponding to the claimed ratio for “E signal and F signal [to] become equal” and for “TE signal [to be] set to 0” in the normal state in which tilt is not produced. (Paragraph 0019 and note that  $E = F \times TBAL$  when  $TBAL = E/F$ )).

In regard to claims 2, 9 and 13, said coefficient  $t$  of Kashiwabara is inherently set to such a value corresponding to a ratio of the average light volume of return light illuminating said one of the two portions of the photoelectric converter unit and the average light volume of return light illuminating said other of the two portions of the photoelectric converter unit, or to a ratio of the light volume, sampled at a preset timing, of return light illuminating said one of the two portions of the photoelectric converter unit and the light volume, sampled at a preset timing, of return light illuminating said other of the two portions of the photoelectric converter unit because

the manner in which the value of coefficient  $t$  corresponds to the ratio is not specified and any value corresponds to another value in some way.

In regard to claim 10, Kashiwabara discloses that said coefficient  $t$  is set from outside the optical head device (Fig. 1 and note that coefficient TBAL is set in DSP 6 (Paragraph 0019) which is outside the optical head of Kashiwabara).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwabara in view of Masui (JP 2001-266371). Note that citations to the text of Masui refer to the English translation provided by the JPO website.

In regard to claims 7, 11 and 14, Kashiwabara discloses the optical disc apparatus, light detection unit and optical head device of claims 1, 8 and 12 respectively but does not disclose that said light detection unit includes a first amplifier circuit for amplifying an electrical signal generated by said one of said two portions of the photoelectric converter unit by an amplification factor related to the power of laser light illuminated on said optical disc for recording signals thereon, or to a rotational speed of said optical disc; and a second amplifier circuit for amplifying the electrical signal generated by said other of said two portions of the photoelectric converter unit by said amplification factor; said multiplication circuit multiplying the electrical signal output by said first amplifier circuit with a coefficient  $t$ ; said differential circuit calculating the

difference between the electrical signal output from said second amplifier circuit and the electrical signal output from said multiplication circuit to generate a radial push-pull signal.

Masui discloses a light detection unit (Fig. 4) including a first amplifier circuit (Fig. 4, elements 2c and 2d) for amplifying an electrical signal generated by one (Fig. 4, elements 1c and 1d) of two portions of a photoelectric converter unit (Fig. 4, element 1) by an amplification factor (Fig. 4, element Gw) related to the power of laser light illuminated on an optical disc for recording signals thereon, or to a rotational speed of said optical disc (Paragraphs 0131-0132 and 0154-0158); and a second amplifier circuit (Fig. 4, elements 2a and 2b) for amplifying the electrical signal generated by said other (Fig. 4, elements 1a and 1b) of said two portions of the photoelectric converter unit by said amplification factor. Masui discloses that, by doing so, a stable servo operation is performed (Paragraphs 0129, 0132 and 0158).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the light detection unit of Kashiwabara to include a first amplifier circuit for amplifying an electrical signal generated by said one of said two portions of the photoelectric converter unit of Kashiwabara by an amplification factor related to the power of laser light illuminated on said optical disc of Kashiwabara for recording signals thereon, or to a rotational speed of said optical disc; and a second amplifier circuit for amplifying the electrical signal generated by said other of said two portions of the photoelectric converter unit of Kashiwabara by said amplification factor; as suggested by Masui, the motivation being to perform a stable servo operation in the apparatus of Kashiwabara. As a result, in the combination of Kashiwabara in view of Masui, said multiplication circuit multiplying the electrical signal output by said first amplifier circuit with a coefficient  $t$ ; said differential circuit calculating the difference between



the electrical signal output from said second amplifier circuit and the electrical signal output from said multiplication circuit to generate a radial push-pull signal.

***Allowable Subject Matter***

7. Claims 3-6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the references of record alone or in combination suggest or fairly teach an optical disc apparatus including all the features of claim 1 and wherein said coefficient  $t$  may be set from outside of said light detection unit; and wherein said signal processing circuit calculates a ratio of an average value of an electrical signal by return light illuminating said one of said two portions of said photoelectric converter unit and an average value of an electrical signal by return light illuminating said other of said two portions, or a ratio of said average value, sampled at a preset timing, of said electrical signal by return light illuminating said one of said two portions, and said average value, sampled at a preset timing, of said electrical signal by return light illuminating said other of said two portions; said signal processing circuit generating said coefficient  $t$  based on the calculated value to set said coefficient  $t$  in said photoelectric converter unit.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kwak (US 5,291,466) discloses an optical disc apparatus comprising: two photoelectric converter units; a multiplication circuit for multiplying an electrical signal, generated by one of said photoelectric converter units, with a coefficient  $t$ ; and a differential circuit for calculating a difference between an electrical signal, generated by the other of said

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photoelectric converter units, and an electrical signal output from said multiplication circuit, to generate a radial push-pull signal (Fig. 4). Tajima (US 4,750,162) discloses an optical disc apparatus comprising: two photoelectric converter units; a multiplication circuit for multiplying an electrical signal, generated by one of said photoelectric converter units, with a coefficient  $t$ ; and a differential circuit for calculating a difference between an electrical signal, generated by the other of said photoelectric converter units, and an electrical signal output from said multiplication circuit, to generate a reproduction signal, said coefficient  $t$  being set to a value corresponding to a ratio of the light volume of return light illuminated on said one of said two portions of said photoelectric converter unit and the light volume of return light illuminated on said other of said two portions (Fig. 2A and Col. 6). Wu et al. (US 7,023,767) disclose multiplying an electrical signal from sub-beams by a variable coefficient and subtracting the result from an electrical signal from a main beam to generate a radial push-pull signal (Figs. 2 and 3). Sasaki et al. (US 5,926,445) (Figs. 3 and 4), Takamine et al. (US 6,567,372) (Fig. 1), and Kato et al. (US 6,545,972) (Fig. 7) disclose calculating a coefficient with which the electrical signal from one portion of a light detection unit is multiplied before subtracting the result from the electrical signal from the other portion to generate a radial push-pull signal.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Battaglia whose telephone number is (571)272-7568. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael V. Battaglia/  
Primary Examiner, Art Unit 2627